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## EXHIBIT “H” QUALITY ASSURANCE REQUIREMENTS

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**QC-02 DESIGN/CHANGE CONTROL FOR SUBCONTRACTOR PROVIDED DESIGN (May 2008)**

SUBCONTRACTOR shall provide a design that is defined, controlled, and verified. Applicable design inputs shall be appropriately specified on a timely basis and correctly translated into design documents. Design interfaces shall be identified and controlled. Persons other than those who designed the item shall verify design adequacy and accuracy. Design changes shall be governed by controlled measures commensurate with those applied to the original design.

**QC-06 CERTIFICATE OF CONFORMANCE (Standard) (May 2012)**

SUBCONTRACTOR shall provide a Certificate of Conformance (C of C) for all items/services procured through this subcontract. The C of C(s) shall be from SUBCONTRACTOR and/or Manufacturer, shall identify CONTRACTOR'S subcontract number, and state that the item/service described thereon (description to include any applicable part/model/serial numbers) conforms in all respects with subcontract requirements, including any applicable specifications, drawings, marking requirements, and part/model number identification. The certificate(s) shall be signed or otherwise authenticated by a representative of SUBCONTRACTOR and/or manufacturer. The C of C shall specifically certify (for each system; Trinity and NERSC-8) that all computer system hardware and software meet the intent of the SUBCONTRACTOR design and the LANL Subcontract.

**QC-07 MANUFACTURING, INSPECTION AND TEST PROCEDURES (Jun 2011)**

SUBCONTRACTOR shall upon CONTRACTOR'S request, submit to CONTRACTOR for review prior to manufacturing, inspection or testing, written manufacturing/inspection/test procedures, checklists, and/or travelers detailing the manufacturing, inspection and testing that will be performed to verify that the items to be supplied conform to the requirements of this subcontract.

**QC-08 INSPECTION, EXAMINATION, AND TEST REPORTS (Sept 2011)**

SUBCONTRACTOR shall provide to CONTRACTOR, with or prior to each shipment and traceable to the shipment, or as the result of on-site testing/inspection, all reports of inspections and/or tests performed on the items procured/inspected/tested.

**QC-11 ENGINEERING DRAWINGS (Sept 2011)**

SUBCONTRACTOR shall provide to CONTRACTOR, with or prior to completion of design deliverables or prior to fabrication if required by the procurement documents, or with or prior to the shipment of any applicable items and traceable to the item shipment, engineering drawings detailing the design of the items/systems required by this subcontract. For specific items, this requirement may be satisfied by inclusion of existing drawings in a technical operations/maintenance manual. Further, drawings may be for design only or for fabrication/construction to occur at a later date and may include, during or after fabrication/construction, any applicable as-built drawings.

**QC-17 MANUALS / INSTRUCTIONS (Jun 2011)**

SUBCONTRACTOR shall submit manuals/instructions or other documents that identify the items provided and include as applicable, drawings/sketches, part/model numbers (including recommended spare and replacement parts and data required for ordering), storage guidelines, safety precautions, installation/test instructions, and operating and maintenance instructions. The manual/instructions shall be written in clear, concise language readily understandable by a technician or craftsman, and shall conform to the industry standards that prevail for the preparation of such documents.

**QC-22 CONTRACTOR'S RIGHT OF ACCESS TO SUBCONTRACTOR'S FACILITY (Visit) (Jun 2011)**

CONTRACTOR reserves the right to send its representatives to visit SUBCONTRACTOR'S facilities, on a non-resident basis, for surveillance and survey/audit purposes, to assure/verify SUBCONTRACTOR'S conformance to the technical requirements of this subcontract, including test and inspection

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requirements, and all applicable quality assurance requirements. Such personnel shall be allowed full access to: (1) witness all operations/tests involved in the performance of this subcontract; and (2) survey/audit all records pertaining to the subcontract. Reasonable advance notice (minimum 24 hours), in writing, will be provided to SUBCONTRACTOR prior to any such visits. SUBCONTRACTOR shall flow down this requirement for CONTRACTOR'S right of access to all lower-tier subcontractors and suppliers.

**QC-23 CONTRACTOR'S RIGHT OF ACCESS TO SUBCONTRACTOR'S FACILITY (Resident)  
(May 2008)**

CONTRACTOR, at its discretion, may assign and station resident representatives at SUBCONTRACTOR'S facility to provide program coordination. These representatives will assist in expediting actions between CONTRACTOR and SUBCONTRACTOR, maintain program surveillance, and evaluate program progress. The resident representatives shall have access to all areas and all information directly related to the scope of their responsibilities hereunder. SUBCONTRACTOR agrees to provide appropriate office space, office supplies, secretarial services, and communication facilities for such representatives at no additional cost to CONTRACTOR.

**QC-24 DESIGN REVIEW PRIOR TO PRODUCTION (Sept 2011)**

Unless waived in writing by CONTRACTOR, before release of the design documents, SUBCONTRACTOR shall provide for one or more design reviews by CONTRACTOR and shall obtain written approval/authorization from CONTRACTOR to finalize design and/or begin production/fabrication/construction. To facilitate the design review, SUBCONTRACTOR shall notify CONTRACTOR of its readiness for a design review conference at least five (5) working days before the date on which the conference is scheduled. The notification shall include the proposed conference agenda and one reproducible copy of each document that constitutes the design or helps to demonstrate that the design meets CONTRACTOR'S requirements.

**QC-25 NONCONFORMANCE REPORTING (Jun 2011)**

SUBCONTRACTOR shall notify CONTRACTOR of each nonconformance against engineering, inspection, or test requirements within three (3) working days of discovery. This includes, but is not limited to, nonconformance with documentation requirements and technical or material requirements, including situations where an item may be restored so as to function unimpaired, but it does not meet the original subcontract/design requirement. Notice of a nonconformance shall consist of a written description of the nonconformance, an assessment of the cause, and the proposed corrective action, including technical justifications for any proposed Use-As-Is or Repair dispositions. In all cases, the disposition of a nonconformance will be approved by CONTRACTOR with corresponding disposition implementation verified. All nonconformance documentation will be supplied by SUBCONTRACTOR to CONTRACTOR. SUBCONTRACTOR shall allow for the return of any materials determined by CONTRACTOR to be nonconforming as a result of CONTRACTOR'S receipt inspection.

**QC-26 CORRECTIVE ACTION REPORTS (Jun 2011)**

SUBCONTRACTOR shall provide a written acknowledgement within five (5) working days of receipt of a request for corrective action from CONTRACTOR. SUBCONTRACTOR shall respond in writing within 30 days, with actual corrective actions taken or planned. Prior to implementation, such actions will be evaluated and approved by CONTRACTOR to ensure corrective actions have been/will be effectively implemented.

**QC-27 SUSPECT/COUNTERFEIT ITEMS (Jun 2011)**

- (a) A suspect item is one in which there is an indication by visual inspection, testing, or other information that it may not conform to established Government or industry-accepted specifications or national consensus standards. A counterfeit item is a suspect item that is a copy or substitute, without legal right or authority to do so, or one whose material, performance, or characteristics are knowingly misrepresented by the vendor, supplier, distributor, or manufacturer.

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- (b) SUBCONTRACTOR warrants that all items, including their subassemblies, components, and parts, tendered to CONTRACTOR shall be genuine (i.e., not counterfeit), new and unused, and conform to the requirements of this subcontract, without substitution unless otherwise provided for within this subcontract or approved in writing by CONTRACTOR prior to delivery.
- (c) SUBCONTRACTOR further warrants that all components, parts, materials, and supplies incorporated into CONTRACTOR'S facilities or equipment by SUBCONTRACTOR, during performance of work at LANL, shall be genuine, new and unused, and original-equipment-manufacturer items, without substitution unless otherwise provided for within this subcontract or approved by CONTRACTOR in writing as suitable for the intended purpose prior to use.
- (d) As part of the foregoing warranties, SUBCONTRACTOR also certifies that all labels and/or trademarks or logos affixed, or designed to be affixed; to items supplied or delivered to CONTRACTOR, and to certifications, affirmations, information, or documentation related to the authenticity and quality of items supplied or delivered to CONTRACTOR under this subcontract, are genuine.
- (e) Falsification of information or documentation may constitute criminal conduct; accordingly, SUBCONTRACTOR grants CONTRACTOR the right to temporarily segregate items, and related paperwork, that are suspected to be S/CI, pending a determination by National Nuclear Security Administration (NNSA) or Department of Energy (DOE) officials whether the segregated items should be impounded as evidence.
  - (1) In the event NNSA/DOE directs CONTRACTOR to impound the segregated items, no liability shall be asserted or enforceable against CONTRACTOR, NNSA, or DOE because of the impoundment, all such liability being expressly waived by SUBCONTRACTOR or any person claiming any right or interest under this subcontract in the impounded items.
  - (2) CONTRACTOR shall incur no liability for failure to return impounded items to SUBCONTRACTOR and does not assume any liability for loss or damage to the items impounded or temporarily segregated pursuant to this clause regardless of the circumstances under which said loss or damage may have occurred, and whether the impounded or temporarily segregated items are in CONTRACTOR'S possession or under its control.
- (f) Nothing in this clause shall limit CONTRACTOR'S right to reject S/CI, and related paperwork, as nonconforming, to deny payment for such items, to return such items to SUBCONTRACTOR once NNSA/DOE has released the items, or to assert other remedies provided under this subcontract or by law.

**QC-29 HANDLING, STORAGE, SHIPPING, AND PACKAGING (Jun 2011)**

SUBCONTRACTOR shall control the handling, storage, cleaning, packaging, shipping, and preservation of items to prevent damage or loss and to minimize deterioration. Handling, storage, and shipping of items shall be conducted in accordance with established work and inspection instructions, drawings, specifications, shipment instructions, or other pertinent documents or procedures specified for use in conducting the activity. Items shall be packaged according to size, manufacturer, dimensional and manufacturer lot or heat number. Packages shall be closed and labeled in a manner that identifies the item, dimensions and weight (where applicable), SUBCONTRACTOR'S and/or manufacturer's name, and CONTRACTOR'S subcontract number. Non-conforming packages may be returned to SUBCONTRACTOR at SUBCONTRACTOR'S expense.

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**QC-34 DOCUMENTS AND RECORDS (May 2012)**

Any documents and records required to be submitted by SUBCONTRACTOR to CONTRACTOR are identified in this subcontract, including any dates/times for submittal. SUBCONTRACTOR shall retain records resulting from subcontract performance for seven (7) years from final payment, unless otherwise specified by applicable law. Disposition of Subcontractor maintained records after the specified retention times are at the discretion of the SUBCONTRACTOR.

**QC-36 SOFTWARE QUALITY ASSURANCE (Sept 2011)**

SUBCONTRACTOR shall maintain records for all computer software which will identify and state the software engineering activities used to manage the software life cycle activities required for the purchased software items/products or services, and these records shall be made available for CONTRACTOR'S review upon request. The software life cycle activities will be identified, such as: requirements, design, user implementation, acceptance testing, verification, validation, problem reporting, corrective action, errata reporting, and software configuration management processes used for the software item/products or services to be purchased.

**QC-37 OTHER**

SUBCONTRACTOR will have a Quality Assurance (QA) Program that meets the 10 Quality Criteria of DOE Order 414.1D (an ISO 9001 certified program will meet this intent; see the following summary of the 10 Quality Criteria). Further, SUBCONTRACTOR will provide for CONTRACTOR review and approval, a QA Plan (consistent with SUBCONTRACTOR's QA Program) specific to the requirements of this Subcontract. A draft version of this QA Plan will be provided as part of the proposal and it will be finalized and submitted for CONTRACTOR review and approval within 30 days of subcontract award.

The Quality Assurance Program (QAP) must address the following management, performance, and assessment criteria (ref. DOE Order 414.1D):

- (a) Management/Criterion 1 - Program.** (1) Establish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work. (2) Establish management processes, including planning, scheduling, and providing resources for the work.
- (b) Management/Criterion 2 - Personnel Training and Qualification.** (1) Train and qualify personnel to be capable of performing their assigned work. (2) Provide continuing training to personnel to maintain their job proficiency.
- (c) Management/Criterion 3 - Quality Improvement.** (1) Establish and implement processes to detect and prevent quality problems. (2) Identify, control, and correct items, services, and processes that do not meet established requirements. (3) Identify the causes of problems and include prevention of recurrence as a part of corrective action planning. (4) Review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement.
- (d) Management/Criterion 4 - Documents and Records.** (1) Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design. (2) Specify, prepare, review, approve, and maintain records.
- (e) Performance/Criterion 5 - Work Processes.** (1) Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means. (2) Identify and control items to ensure proper use. (3) Maintain items to prevent damage, loss, or deterioration. (4) Calibrate and maintain equipment used for process monitoring or data collection.

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- (f) Performance/Criterion 6 - Design.** (1) Design items and processes using sound engineering/scientific principles and appropriate standards. (2) Incorporate applicable requirements and design bases in design work and design changes. (3) Identify and control design interfaces. (4) Verify or validate the adequacy of design products using individuals or groups other than those who performed the work. (5) Verify/validate work before approval and implementation of the design.
- (g) Performance/Criterion 7 - Procurement.** (1) Procure items and services that meet established requirements and perform as specified. (2) Evaluate and select prospective suppliers on the basis of specified criteria. (3) Establish and implement processes to ensure that approved suppliers continue to provide acceptable items and services.
- (h) Performance/Criterion 8 - Inspection and Acceptance Testing.** (1) Inspect and test specified items, services, and processes using established acceptance and performance criteria. (2) Calibrate and maintain equipment used for inspections and tests.
- (i) Assessment/Criterion 9 - Management Assessment.** (1) Ensure that managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives.
- (j) Assessment/Criterion 10 - Independent Assessment.** (1) Plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance and to promote improvement. (2) Establish sufficient authority and freedom from line management for independent assessment teams. (3) Ensure persons who perform independent assessments are technically qualified and knowledgeable in the areas to be assessed.